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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/416,098	10/12/1999	TERESA H. MENG	259697	5713

27498 7590 01/09/2004

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EXAMINER

LIU, SHUWANG

ART UNIT PAPER NUMBER

2634

DATE MAILED: 01/09/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/416,098

Applicant(s)

MENG ET AL.

Examiner

Shuwang Liu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5,8,9,15,16,18,19,22,23,29,31,34 and 35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,8,9,15,16,18,19,22,23,29,31,34 and 35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on 10/15/03 have been fully considered but they are not persuasive. The Examiner has thoroughly reviewed Applicant's arguments but firmly believes that the cited reference reasonably and properly meet the claimed limitation as rejected.

(1) regarding claim 29:

Applicant's argument – "Clarke neither discloses nor suggests a device that includes a frequency shift block being adapted to digital shift the data in frequency in accordance with a common carrier frequency and the carrier frequency offset."

Examiner's response – As discloses by Clarke et al., the error detector circuit (39, 29) applied in a digital data communications system (column 4, lines 1-10) is a frequency shift block which detects any drift in the carrier frequency F of the **sample** from the desired microwave frequency and provides a corrective signal to the input circuit (column 3, line 15-30 and column 5, lines 10-34). The correction of the drift in the carrier frequency F of the sample is referring to being adapted to "digital shift the data in frequency." The desired microwave frequency is referring to the "common carrier frequency."

(2) regarding claims 1, 15, 34 and 35:

Applicant's argument – "Liu nowhere discloses a OFDM, NBFDM, DMT, FDMA or TDMA communication system as required by amended independent claims 1, 15, 34

and 35. Liu discloses a method and device used in a spread-spectrum CDMA communication system. As is known in the art, the CDMA protocol is not the same as, nor obvious over, a communication system that uses OFDM, NBFDM, DMT, FDMA or TDMA. In contrast, the OFDM, NBFDM, DMT, FDMA or TDMA communication system operates over a common frequency."

Examiner's response –

(1) As disclosed by the Applicant, the invention is particularly useful for CDMA modulation techniques (see pages 7-8 in the specification). The proposed amendment, which excludes the CDMA protocol in order to overcome the rejection in the previous office action, is a new matter.

(2) In response to applicant's amendment of "using one of OFDM, NBFDM, DMT, FDMA and TDMA, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

(3) In response to applicant's arguments, the recitation "using one of OFDM, NBFDM, DMT, FDMA and TDMA" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a

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structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

(4) Liu's method and system is for performing more precise carrier offset estimation of a spread spectrum system (column 1, line 59-column 2, line 36), it is well known that the spread spectrum system is not limited to the CDMA system, but also includes OFDM, NBFDM, DMT, FDMA and TDMA. Therefore, Liu's method is useful not limited to the CDMA system, but should be useful in other modulation techniques such as, OFDM, NBFDM, DMT, FDMA and TDMA.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1, 2, 4, 5, 8, 9, 15, 16, 18, 19, 22, 23, 34 and 35 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The recitation "using one of OFDM, NBFDM, DMT, FDMA and TDMA", which excludes CDMA described in the specification, is a new matter.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claim 29 is rejected under 35 U.S.C. 102(b) as being anticipated by Clarke et al. (US 5781847).

As shown in figures 1 and 3, Clarke et al. discloses a device adapted to be used in a first unit (receiver, 20 and 40) that can communicate with a second unit (transmitter, 10a or 10b) using a common carrier frequency (abstract), the device comprising:

a frequency lock loop (60 and 24 a or 24 b in figure 3) that is coupled to receive a digital representation of a first signal transmitted (column 5, lines 12-15) by the second unit (transmitter), the frequency lock loop being adapted to detect a carrier frequency

offset in the first signal and to produce offset information corresponding thereto (column 7, lines 17-20 and column 11, lines 22-35); and

a frequency shift block (39, 29) that is coupled to receive the offset information and data to be transmitted by the first unit (receiver) in a second signal to be received by the second unit, the frequency shift block being adapted to digitally shift the data in frequency in accordance with the common carrier frequency and the carrier frequency offset so that the effects of the carrier frequency offset to be perceived by the second unit will be substantially reduced (abstract, column 5, lines 26-34, column 7, lines 17-23 and column 11, lines 42-60).

6. Claims 1, 2, 4, 5, 8, 15, 16, 18, 19, 22, 34 and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Liu et al. (US 5,982,809).

As shown in figures 1 and 2, Liu et al. disclose a device and a method to be used in a communication system in which a first unit (transmitter) communicates with a second (receiver) using a common frequency (ω_0 carrier frequency) (column 6, lines 1-23), comprising:

(1) regarding claims 1, 15 and 35:

means (38 and 33) for detecting an offset (44, $\delta\omega_0$ see column 6, lines 35-44) between the common frequency used by the first unit and the second unit in a first signal transmitted by the first unit and received by second unit (column 7, lines 55-65); and

means (36, 34 and 33) for adjusting the common frequency in accordance with

the offset (44) in a second signal to be transmitted by the second unit (by 33 in the second unit) and to be received by the first unit (by 64 in the first unit) so that the effects of the offset to be perceived by the first unit will be substantially reduced (abstract).

Furthermore, the device comprising:

means (28 and 34) for communicating information corresponding to the detected offset from the second unit to the first unit as recited in claim 35.

(2) regarding claim 34:

means (38, 33 and 46) for detecting an offset (44, $\delta\omega_0$ see column 6, lines 35-44) between the common frequency used by the first unit and the second unit in a first signal transmitted by the first unit and received by second unit (column 7, lines 55-65);

means (28 and 34) for communicating information corresponding to the detected offset from the second unit to the first unit; and

means (36, 34 and 33) for adjusting the common frequency in accordance with the offset (44) in a second signal to be transmitted by the first unit (by 64 in the first unit) and to be received by the second unit (by 33 in the second unit) so that the effects of the offset to be perceived by the first unit will be substantially reduced (abstract).

(3) regarding claims 2 and 16:

wherein the common frequency is a carrier frequency (ω_0).

(4) regarding claims 4 and 18:

wherein he means for detecting the offset includes means (46) for performing a correlation on a digital representation of the first signal so as to lock onto the offset in the carrier frequency (column 3, lines 13-19).

(5) regarding claims 5 and 19:

wherein the means for adjusting the common frequency includes a means (33) for digitally shifting data in frequency to be transmitted in accordance with the carrier frequency and the offset.

(6) regarding claims 8 and 22:

wherein the means for detecting the offset includes means includes means (33) for locking onto the offset in the carrier frequency and for producing an output signal corresponding thereto.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 9 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. (US 5,982,809) in view of Theus et al. (US 5,805,029).

Liu et al. discloses all of the subject matter as described above except for specifically teaching means for variably adjusting a reference frequency output by a crystal oscillator in accordance with the output signal generated by the locking means as recited in claims.

Theus et al. teaches a digital adjustable crystal oscillator (1 and 2 in figures 1 and 4).

It would be desirable to use a crystal oscillator in order to provide frequency changes over a greater frequency range while still providing stable oscillation (column 1, lines 46-49, Theus et al.). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the crystal oscillator as taught by Theus et al. to replace the digital oscillator 34 of Liu et al. in order to provide frequency changes over a greater frequency range while still providing stable oscillation.

9. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clarke et al. (US 5,781,847) in view of Theus et al. (US 5,805,029).

As shown in figures 1 and 3 and described in item 4 above, Clarke et al. discloses a frequency lock loop (60 and 24 a or 24 b in figure 3) and a variably adjustable device (13a or 13b) as recited in the claim.

Clarke et al. discloses all of the subject matter as described above except for specifically teaching a crystal oscillator that supplies a reference frequency for modulating a second signal to be perceived by the second unit in accordance with the common carrier frequency.

Theus et al. teaches a digital adjustable crystal oscillator (1 and 2 in figures 1 and 4).

It would be desirable to use a crystal oscillator in order to provide frequency changes over a greater frequency range while still providing stable oscillation (column 1,

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lines 46-49, Theus et al.). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the crystal oscillator as taught by Theus et al. to replace the oscillator 12a or 12b of Clarke et al. in order to provide frequency changes over a greater frequency range while still providing stable oscillation.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shuwang Liu whose telephone number is (703) 308-9556.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin, can be reached at (703) 305-4714.

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Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9306 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



Shuwang Liu
Primary Examiner
Art Unit 2634

December 27, 2003